

## Claims

I claim:

1 1. A flame-retarding and smoke-suppressing article of manufacture comprising, by  
2 weight:

3 a cloth fabric 33.0 to 1400.0 grams per square meter;

4 an adhesive binder 12.0 to 1050.0 grams per square meter of the cloth fabric;

5 and

6 an additive powder 120.0 to 6250.0 grams per square meter of the cloth  
7 fabric, the additive powder further comprising, by weight:

8 a phosphate-based catalyst 30.0 to 41.0%;

9 a carbonific 22.0 to 29.0%;

10 a blowing agent 15.5 to 17.5%;

11 a cementitious inorganic binder 21.0 to 25.0; and

12 a ceramic 2.50 to 5.00.

1 2. The article of manufacture of claim 1 wherein the phosphate-based catalyst is  
2 selected from the group consisting of ammonium polyphosphate, tris(beta-  
3 chloroethyl) phosphate, guanidine phosphate, urea phosphate, melamine  
4 phosphate, monoammonium phosphate, diammonium phosphate and mixtures  
5 thereof.

1 3. The article of manufacture of claim 1 wherein the carbonific is selected from the  
2 group consisting of dipentaerythritol, tridipentaerythritol, pentaerythritol,  
3 pentaerythritol polyurethane, phenol, triethylene glycol, resorcinol, inositol,  
4 sorbitol, dextrin, and starch.

1 4. The article of manufacture of claim 1 wherein the blowing agent is selected from  
2 the group consisting of urea, butyl urea, benzene sulfonyl-hydrazide, melamine,  
3 chloroparaffin, guanidine, glycine, and secondary carbonifics.

1 5. The article of manufacture of claim 4 wherein the secondary carbonifics include  
2 chlorine containing material.

1 6. The article of manufacture of claim 5 wherein the chlorine containing material is  
2 selected from the group consisting of a chlorinated paraffin, and a mixture of a  
3 chlorinated paraffin containing about 70%, by weight, of chlorine and a chlorinated  
4 paraffin containing about 40% by weight, of chlorine, with a weight ratio of 70%  
5 chlorinated paraffin to 40% chlorinated paraffin is about 2:1.

1 7. The article of manufacture of claim 1 wherein the cementitious inorganic binder  
2 includes calcium aluminate cement and silica flour.

1 8. The article of manufacture of claim 1 wherein the ceramic is selected from the  
2 group consisting of ceramic spheres, and silica spheres.

1 9. The article of manufacture of claim 8 wherein the spheres are in a range of 10 to  
2 500 micron in diameter.

1 10. The article of manufacture of claim 1 wherein the adhesive binder is a resin.

1 11. The article of manufacture of claim 10 wherein the resin is selected from the  
2 group of styrenic, olefinic, acrylic, cellulosic, polyester, phenolic, rosin, shellfish  
3 resin, polyamide, an aliphatic adhesive binding compound, and an aromatic  
4 organic adhesive binding compound.

1 12. The article of manufacture of claim 10 wherein the resin is a thermoset resin.

1 13. The article of manufacture of claim 10 wherein the resin is a curable resin.

1 14. The article of manufacture of claim 10 wherein the resin is a thermoplastic.

1 15. The article of manufacture of claim 1 wherein the cloth fabric is selected from  
2 the group of woven glass rovings, woven yarns, veils, cloths, surfacing mattes,  
3 non-woven fabric, woven fabrics, knitted fabrics, all glass fabrics, all carbon  
4 fabrics, Kevlar fabrics, ceramic fabrics, Nomex fabrics, basalt fabrics, and air  
5 texturized fabrics.

1 16. The article of manufacture of claim 1 wherein the additive powder forms an  
2 external fire-retarding layer on the cloth fabric and the adhesive resin forms a  
3 reinforced layer on the cloth fabric.

1 17. The article of manufacture of claim 1 wherein the additive powder is in a form  
2 of an aqueous slurry applied to the cloth fabric.

1 18. The article of manufacture of claim 1 wherein the additive powder is in a form  
2 of an aqueous slurry applied to the cloth fabric by dipping.

1 19. The article of manufacture of claim 1 wherein the additive powder is in a form  
2 of an aqueous slurry applied to the cloth fabric by roll coating.

1 20. The article of manufacture of claim 1 wherein the additive powder is in a form  
2 of an aqueous slurry applied the cloth fabric by a knife-over fabric coater.

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